Students from Fruitland Middle School explore the concepts of concentration gradients and semi permeable membranes at one of several science and engineering expos INL recently hosted in the Treasure Valley.

Science, engineering expos offer hands-on learning

by Marilyn Whitney, *INL Communications & Public Affairs*

Students, teachers and parents from across southwest Idaho experienced the excitement of exploration and discovery at science and engineering expos recently sponsored by Idaho National Laboratory. The expos were held at Northwest Nazarene University (NNU) and Boise State University (BSU) in January.

Kevin Young, INL's "Rocket Man," gets creative to demonstrate how Newton's Laws of Motion apply to rocketry at this year's BSU Engineering Expo.

For the past 10 years, INL has partnered with NNU to offer middle school students a Science Extravaganza. This year, more than 1,400 students, teachers and parents participated in "Exploring the Nature of Science," where students rotated through hands-on activities. The 12 session options this year included activities on flight led by NASA and the Warhawk Air Museum, an interactive game exploring extreme weather facilitated by the National Weather Service, and an activity focused on the anatomy and physiology of birds provided by the Peregrine Fund. The Boise Water Shed added a new activity this year with a lesson on wastewater science where students had a chance to treat water filled with pollutants — coffee grounds, tootsie rolls, garden soil and sea salt.

NNU students also coordinated several activities including "Creepy Crawlies," which gave participants a chance to explore the biology of amphibians and reptiles, with special focus on species that live in Idaho.

"NNU students involved with researching Idaho Giant Salamanders, a species found nearly exclusively in Idaho, share their findings with the young students," says NNU biology professor John Cossel. "Visiting schoolchildren are excited by the hands-on activities and look up to our students as science role models."

Karen Abbott teaches sixth grade at Boise's Taft Elementary and has been bringing her students to NNU since the Science Extravaganza began.

"We participate because we want students excited about science," Abbot says. "The science extravaganza is a perfect opportunity for us. The kids get three quick classes on a variety of topics that are always standards-based. They come back to school eager to learn more. It also allows our students a glimpse of a college campus. We are a Title I school and many of our children have had no previous exposure to this setting. It is one field trip that both students and teachers are excited to attend."

On the other side of the Treasure Valley, more than 650 elementary and middle school students and chaperones visited BSU's College of Engineering to experience hands-on demonstrations and activities as part of the INL-sponsored Engineering Extravaganza. BSU engineering students led sessions on bridge building, artificial intelligence, solar power and materials science. This year's featured presenter, INL's Kevin Young, presented a lively and interactive workshop on rocketry. He emphasized that just about anyone can become a rocket scientist. Students learned the fascinating history of rocketry, the basics of rocket propulsion, how rockets are guided, and how rockets and satellites have changed our world.

INL and partner organizations also hosted the free annual Discover Engineering Day. Nearly 5,000 attendees flocked to the BSU campus to try their hands at more than 30 science, technology, engineering and math activities. This year's sessions offered participants the chance to make and test gliders with NASA aerospace education specialist Brian Hawkins, learn about mysterious materials with Micron, design and build lunar landers with Society of Women Engineers members and experience a star lab planetarium provided by the Boise School District. Even preschoolers got in on the fun as the Block Fest program returned with its award-winning early-childhood math and science event.

One of this year's most popular activities, led by the Kuna High School Science Club, gave parents and kids a chance to build wind turbines and test their designs. The highlight for many participants was an interactive presentation by astronaut Barbara Morgan, NASA's first Educator Astronaut who flew aboard the space shuttle Endeavor in August 2007. Morgan shared her experiences at NASA and in space and autographed photos for participants.

"The event was a blast!" said parent Christine Rood. "The entire family attended. The atmosphere of a college campus was so much fun for the kids and nice exposure at an early age. The open demonstrations by Idaho Power captured the kids' attention and riding the bike to generate energy was a hit. The whole family created a windmill with straws, cups and tinker toys, and the windmill creation was measured for the energy output. The kids thought it was a kick."

This year's event sponsors included NNU College of Science, BSU College of Engineering, Discovery Center of Idaho, Hewlett-Packard, CH2M Hill, Idaho Power, Micron Technology, NASA, United Water, URS Washington Division, and the Idaho Department of Environmental Quality.

A class from Trailwind Elementary School in Boise gets up close as BSU engineering students explain how solar panels generate energy at the annual BSU Engineering Expo.

Links:

Learn more about Discover Engineering Day.
http://coen.boisestate.edu/DiscoverEngineering

Partners/Presenters:

Micron Foundation
www.micron.com/education

Boise Water Shed
http://www.cityofboise.org/Bee/WaterShed/Home/

Peregrine Fund
http://www.peregrinefund.org/default.asp

Warhawk Air Museum
http://www.warhawkairmuseum.org/

Blockfest
http://www.blockfest.org/

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